

The Spread of Corona virus in Lassa fever Endemic Areas; Challenges facing Health Educators: A Review.

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Abstract: *The importation and spread of corona virus into West African countries, especially those that have been ravaged by the recurrent outbreak of Lassa fever has introduced double tension of public health emergency and surveillance in such areas. Lassa fever is an acute hemorrhagic viral illness with very high mortality and morbidity rates. The dreaded infectious disease is caused by Arenaviridae that is transmitted by the multimammate rat, Mastomys natalensis, being discovered first in 1969 in Lassa village of Borno in northern Nigeria. Since then the virus has spread widely and became an epidemic that the western countries of African struggle to contain. However, the outbreak of corona virus which began in Wuhan city of China in the later part of the year 2019 and became a pandemic, has raised much concern on how to combat such deadly global public health emergency in West Africa where the proper vaccine and therapy for Lassa fever is yet to be discovered. Although there is a teeming denial of the real existence of the corona virus pandemic in many quarters especially in rural setting, as many see it as a scam or a foreign disease that has nothing to do with the African soil; this study, in a descriptive manner evaluated the height of tension mounted by the combination of the dreaded infectious diseases that have emerged, and the possible health education strategies that will penetrate the grass root, redirect the people's mindset to the reality of corona virus as an intensified public health emergency added to the dreaded existing Lassa fever. The paper advocates an intensified public health education, aiming at very high level of home hygiene, food safety and environmental sanitation and panacea for containing the spread of both the Lassa virus and the imported corona virus.*

Keywords: *Coronavirus, Challenges, Health Education, Lassa fever.*

Date of Submission: 13-07-2020

Date of Acceptance: 28-07-2020

I. Lassa fever Endemic areas

Lassa fever is a deadly disease with high mortality among the rural dwellers in most West African regions (Ekanem et al 2018). The common existence of the *Mastomys natalensis* being the natural reservoir of Lassa virus makes the region of West Africa an endemic zone for the viral (Buchmeier 2007). The fatality is outrageous, with the estimation of 300,000 to 500, 000 deaths every year (Abyot et al 2019). Another estimation by Alexander et al (2020) indicates that the number of annual cases stands around 300,000 with the range of reported deaths between 5000 to 10,000 yearly. Lassa fever is known to be endemic in Benin, Ghana, Guinea, Liberia, Mali, Sierra Leone, Togo and Nigeria, can also exist in other West African countries as well (WHO fact sheet 2018).

People who are at the greatest risk of Lassa virus infection are those who dwell in or visit the endemic West African regions, and neighboring countries that have exposure to the multimammate rat (Laura and Cassandra 2018). Lassa fever disease is endemic in the countries of the Mano river basin (Guinea, Sierra Leone and Liberia) and Nigeria and these countries report the majority of Lassa fever cases and deaths (Bartels et al 2016). Risk of exposure may also extend and exist in other African countries where *Mastomys* rodents exist (CDC reports). The analysis in Branco et al (2011), maintains that Lassa fever being a devastating hemorrhagic viral disease that is endemic to West Africa is responsible for thousands of human deaths each year in the region. The rodents carriers of the virus are known to readily colonize human habitation, causing the risk of the spread LASV from the infected rats to humans, the reasonable proportion of the population of about 70% live within the rural environment where the rats invade and find their comfort zones too (Kelly et al 2013). *Mastomys natalensis* has been known as the reservoir of Lassa arenavirus which is the grand etiological agent that causes the outbreak of Lassa fever as it is transmitted from the rodents to humans. Communities with multiple number of the rodents are always at high risk of Lassa fever, beginning from rodents to human transmission which paves way for its spread and the continuation of community transmission from human to human (Joachim et al 2018).

Recurrent Outbreak of Lassa fever in Nigeria

The recurrent outbreak of the Lassa virus continues to surge in most African countries because of the African *Mastomys* rodents, being the natural host of Lassa virus continue to live within the settlements and

human dwellings theirs too, making the resurgence of the infectious disease very much easy. Countries such as Sierra Leone, Guinea, Nigeria and Liberia stand at swift risk of the resurgence because of the common existence of the *Mastomys* rodents (Ehichioya et al 2011). As a result of its population and vast geographical size, Nigeria is one of the sub-Saharan African countries known as an endemic region for Lassa fever, with attending challenges to rid the area of the dreaded infectious virus (Warner et al 2018). The outbreak and spread of the virus could go far, cases rising rapidly and many people being infected through community transmission of the virus (Roberts 2018). In all these, the fact is that the outbreaks of infectious diseases have long presented a challenging public health condition in developing countries like Nigeria (Isere 2015). Within the recent years, the frequent outbreaks rises tremendously. Considering the outbreak from the recent past in Nigeria; in 2018 there were 633 number of confirmed cases and 171 number of deaths. In 2019, NCDC reported 793 number of confirmed cases with 162 fatalities. In the present year 2020, a total number of 1,026 Lassa fever cases has been reported, leading to 212 number of deaths between January and June 7, 2020 (NCDC 2020). With the present resurgence of older diseases like Lassa fever and the outbreak and spread of emerging infectious diseases such as corona virus in Nigeria, there is a demand for immediate and sustainable public health action.

The Arrival and Spread of Corona virus in Nigeria

The first index case of coronavirus in Nigeria was reported on the 28th day of February, 2020. It was the case of an Italian traveler who visited the country (Ohia et al 2020). The disease which was first reported in China in December 2019 in Wuhan city of China, swiftly spread across the globe that the World Health Organization (WHO) declared it a pandemic (Ohia et al 2020). As the disease entered African continent, tension rose to a high degree in reference to the fragile status of health system experienced in most African nations. The entrance of COVID 19 into Africa necessitated the call for the continent to be proactive and get prepared with strong surveillance system for rapid detection and prevention of the spread of the virus (Kapata et al 2020). It was feared that the pandemic could be more tasking to keep under control in Africa, and could result to severe economic problems if the spread became vast. The route of the spread of COVID 19 into African did not connect directly from China, it was rather from Europe and America (Maclean 2020). As of April 18, 2020, Africa struggles for ventilators as supply is low: 41 countries have only 2,000 ventilators between them, and ten countries have no ventilators at all. Even basic supplies like soap and water are subject to shortages in parts of the continent. Since the first index case was reported in February 2020, up to June 13, 2020, Nigeria has so far recorded a total of 15, 682 confirmed cases of corona virus with 407 deaths reported (NCDC 2020).

Corona virus Denial Syndrome

The greatest challenge facing the awareness and control of corona virus is the denial of its reality in most countries of the world, like in Nigeria and other sub-Saharan African regions. Those who should be in the forefront of educating and warning others of the reality of the pandemic behave as though it is a temporary phenomenon that should cease in two weeks (Bamidele 2020). In much ignorance, the masses carry on their daily routine with the mindset that coronavirus is not their portion (Bamidele 2020). The spread of the global COVID 19 is occurring in a period when it is very difficult to differentiate between misinformation and disinformation orchestrated by the abundance flow of fake news (Idayat 2020). The trend is worsen by the social media activists, using their media platforms and fringe websites to proliferate conspiracy theories that promote the denial of COVID-19 (Idayat 2020).

The Merging of Corona virus with Lassa fever and Dual Tension mounted

The arrival and spread of COVID 19 in Nigeria and other endemic Lassa fever regions of Africa introduced double track of public health emergency and tension. One of the existing challenges of timely diagnosis of Lassa fever is due to the fact that the clinical features of Lassa virus are difficult to differentiate other various viral hemorrhagic fevers even common tropical and febrile illness like Malaria, Typhoid fever and others (Adewuyi et al 2009). Based on the laboratory proof that clinical manifestations of Lassa fever are non-specific, as the symptoms may include fever, sore throat, headache, muscle pain and vomiting in the early stage of the illness (Dahmanea, et al 2014), the virus could be confused with other common conditions like flu and malaria. Diagnostic confirmation is difficult, requiring sophisticated laboratory facilities. Definitive diagnosis is by viral isolation, Antigen and Antibody detection and Reverse Transcriptase PCR. Treatment is with Ribavirin, an antiviral agent. No vaccine is currently available. Prevention is by keeping rats away from homes (Adewuyi et al 2009). Similarly, the prevention of the spread of corona virus is richly elucidated in the guidelines proffered by WHO (2020) which includes properly and regular washing of hands with soap and water or cleaning of hands with an alcohol-based hand sanitizer, because washing of hands with soap and water or using alcohol-based hand sanitizer eliminates viruses that may be on your hands. Maintaining of social distancing of at least 3 feet apart between oneself and others, since corona virus is contracted when someone sneezes, coughs, or speaks, they spray small liquid droplets from their nose or mouth which may contain virus (WHO 2020). Staying away from crowded places, for the fact that when people come together in crowds, one is more likely to

come into close contact with someone that has corona virus , since crowds make it impossible to maintain physical distance of at least 3 feet. Observing of respiratory hygiene, which involves covering of mouth and nose with a bent elbow or with tissue when one coughs or sneeze. This is followed by the disposal of the used tissue immediately and washing of hands (WHO 2020).

It is advisable to avoid touching eyes, nose and mouth, as the possibility of one by touching many surfaces can pick up the virus and infect himself or herself. Staying home or entering self-isolation even with minor symptoms such as cough, headache, and mild fever, until one recovers is another measure to curb the spread of corona virus (WHO 2020). Seeking of an immediate medical attention by calling a healthcare provider on phone when experiencing a fever, cough and difficult breathing.

Conditions that aggravate the spread of Lassa fever and Coronavirus.

Human to human transmission is the fastest means of infectious diseases. Lassa fever and COVID 19 share a lot in common in the mode of transmission. Concerning the community transmission of Lassa fever, persons that are at greatest risk are those living in rural areas where *Mastomys* are usually found, especially in communities with poor sanitation or crowded living conditions, Rahul (2020). Major findings made in various studies of the factors that encourage the spreading of deadly infectious diseases like Lassa virus and coronavirus showed that there was poor awareness among members of the community, doubt, self-confidence, misleading information and political insincerity are combinations that facilitate community transmission of such deadly communicable viruses. Thus efforts should be made to increase the awareness of the populace through health campaigns, and to reduce the spread of both the vector and the virus (Olayinka et al 2019). The research also showed that Lassa fever and its awareness remain low in sub urban or rural communities.

II. Conclusion

Human behaviors toward home hygiene, dietary pattern and attitude as well as environmental sanitation constitute central factors that determine the successful containing of the spread of infectious diseases. Careless attitude to stipulated health and hygienic rules, like frequent hand washing with soap and water, or the use of alcohol-based sanitizer pave way for the escalation of rapid spread of corona virus and Lassa fever. In the case of Lassa fever, communities that give little or no thought to how their unhygienic living condition could cause the resurgence infectious disease mostly fall victim when there is an outbreak. Those who find their delicacy in rats and other rodents stand the highest risk of contracting rodent infestation and the risk of rapid spreading Lassa virus. Poor hygienic lifestyle on the people in a community housing pattern standard, and environmental sanitations are all key factors that decide the spread and contain of infectious diseases like Lassa fever. Some residential houses are constructed haphazardly that they look like natural rodent places of burrowing. High density of human population in an unkept communal settlement aggravate the sustainable environment for mastomys rodent, the carriers of arenavirus responsible for the infestation of the hemorrhagic Lassa virus. Those who live crowdedly in make-shift and uncompleted houses and those living in poor hygienic slums are prone to contract and spread Lassa virus, since the living condition makes friendly environment and habitation for the rodents. Homes that are constructed with wattle or non- compressed clay are conducive places for mastomy natalensis to be trapped, hidden and breed when compared with houses that are of walls made with moulded blocks.

III. Recommendations

The grand focus to the prevention of the spread of both corona virus and Lassa fever is to achieve an improved community hygiene. This includes regular hand-washing, storing foods in rodent-proof containers, keeping garbage away from the home, avoiding blood and other bodily fluids when caring for sick relatives. With such position, the study recommends the following steps that are necessary for containing Lassa and corona viruses.

- Diverse intensified health education of community members is of paramount need in order to sustain high level of the awareness of the reality of coronavirus, and disabuse the mindset of those who were convinced to deny the existence of coronavirus.
- The similarity and differentiation between the clinical symptoms of Lassa fever and coronavirus should be spelt out in clear layman's term and knowledge.
- Health educators should make sure very good awareness and a high level of knowledge of Lassa fever and coronavirus should be found among community members; thereby correcting any existing misconceptions among community members.
- The health danger in rat consumption should be made explicit to those who regard it as choice delicacy, as some misconceptions are often reported among community members who argue that eating rats has no connection with the transmission of Lassa fever infection.

- Theyounger members of the community who are more knowledgeable of the transmission and prevention of coronavirus and Lassa fever should as much as possible help in educating the older members of the communities.
- Health educators should device paradigm to collaborate with religious and community leaders in educating their adherents of the hygiene and social measures to curb the spread of corona virus and Lassa fever.
- There is high need for health workers to constantly visit slum areas to train the dwellers of hygienic practices and those who construct slum make-shift houses to put mastery in order to deliver structures that are not inviting and open to rodents.
- Soaking and drinking of garri should be discouraged as, especially in slum and bushy communities that are host to mastomys rodents.
- Those who process garri and the dealers are to be educated on the need for safety of the consumers, since garri is usually exposed to mastomys due to careless bagging and storage.
- It was recommended that all religious bodies should create more awareness and counseling programmes for disease control, inculcating public health principles in their religious teachings.
- Avoid touching rats, even if they are alive or dead, as their urine, and droppings even any object soiled with dead rats can be dangerous. Children should not pick up or play with sick and dead rats.
- Avoid eating food or drinking water contaminated with rats' urine and faeces.
- Avoid contact with rodent breeding materials, such as nests and burrows as these could contain Lassa virus infected rodent urine or faeces
- The control of rat population in the dwelling place is project that must be carried out. Careful administration of rat-killer substances, removal of all suspected sources of attraction for rats, like waste bin and smelly left over of meals.
- People should intensify the use food-storing utensils such as rodent-proof containers that cannot be eaten by rats.
- Disposing of garbage in proper way or away from homes, regular house cleaning, and washing dishes immediately after meal, is necessary in order to avoid rodent infestation.
- Holes around the house should be blocked as they form basic hideouts for rodents, and using quality materials during house construction.
- Reporting of suspected corona virus and Lassa fever cases to disease control and safety agencies is an informed manner to go.

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Kwaskebe Justina. "The Spread of Corona virus in Lassa fever Endemic Areas; Challenges facing Health Educators: A Review." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(4), 2020, pp. 11-15.